REMARKS

As a preliminary matter, Applicants respectfully request that the outstanding Office Action (Paper No. 26) be vacated as being not fully responsive. Section 707.07(f) of the MPEP places a burden upon the Examiner, when repeating the previous rejection, to first note and answer the substance of all of Applicants' arguments traversing the rejection. In the present case, however, the Examiner has not answered the substance of several significant arguments presented by Applicants.

In Amendment D, filed December 30, 2002, Applicants traversed the rejection based on the Koma (US 5,608,556) and Hirata (US 5,953,093) references by describing how neither reference, alone or together, shows a first domain regulating means substantially surrounding a second domain regulating means. Applicants pointed out that the Examiner even acknowledged (page 3 of Paper No. 23) that Koma does not show such a feature, and Applicants detailed how the figures cited by the Examiner from Hirata to support his assertion also fail to show any such feature as recited in the present invention. The Examiner has not responded to any of these arguments in the Office Action.

Applicants further requested that the Examiner please identify exactly which elements from Hirata are asserted to correspond to the first and second domain regulating means of the present invention, and exactly how any one of such features of Hirata is shown to "substantially surround" the other feature. The Examiner has not answered, or otherwise addressed, either request. Applicants again submit that this

recited configuration of the present invention alone would render the claims of the present invention patentable over the two cited prior art references, and the Examiner should provide justification for his continued rejection of the claims before repeating the rejection. Accordingly, the outstanding Office Action should be vacated, and the Examiner should answer all of the arguments presented by Applicants in Amendment D.

Applicants therefore maintain and incorporate by reference herein those arguments previously advanced on pages 3 through 7 of Amendment D. Applicants respectfully request that the Examiner reconsider those arguments, and withdraw this Section 103 rejection. Additionally, Applicants respectfully request that the Examiner consider the following new arguments, and expansions upon the previous arguments.

Claim 150-151, 154-160, and 162-170 stand rejected under 35 U.S.C. 103(a) as being unpatentable over Koma in view of Hirata. Applicants again respectfully traverse this rejection because neither of the cited references, whether taken alone or in combination, discloses or suggests first and second domain regulating means provided on two separate substrates, where both domain regulating means are either protrusions or slits, and where the first domain regulating means substantially surrounds the second domain regulating means in a display area of each pixel.

As previously argued, and discussed above, neither Koma nor Hirata discloses that, when seen vertically to the substrates, the first domain regulating means substantially surrounds the second domain regulating means. The Examiner has acknowledged (page 3 of Paper No. 23) that Koma shows no such features, and only

cited Figs. 12 and 14 of Hirata as support for his analogy to this feature of the present invention. Figs. 12 and 14 of Hirata, however, show no such features. Applicants further note that the Examiner, in his rejection, has not actually identified which elements of Hirata are supposed to correspond to the first and second domain regulating means.

In fact, the only domain regulating means actually disclosed by Hirata are the rubbed alignment films 31e and 32e. Hirata clearly shows that both alignment films 31e, 32e, extend across the entire display area of the pixel 31c. Even the broadest reading of Hirata could not conclude that either of the alignment films "substantially surrounds" the other in the pixel display area, since both cover the entire display area. Furthermore, none other of the several elements shown in Figs. 12 and 14 of Hirata are shown to "substantially surround" any other elements. Accordingly, because claim 150 of the present invention instead clearly recites such features (among others), the Section 103 rejection based on Koma and Hirata should be withdrawn.

Additionally, in the interest of expediting prosecution, claim 150 has been further amended to recite that each of the first and second domain regulating means is provided under an alignment layer. In other words, claim 150 of the present invention now more clearly recites that the domain regulating means of the present invention are separate and distinct elements from the alignment layer. The Examiner has already conceded that Hirata's "protrusions" (insulating film lines 31d, Fig. 19), and "slits" (slit-like opening 48, Fig. 22), are only considered to be "domain regulating means" when considered collectively in conjunction with the alignment layers formed over them. The

present invention, on the other hand, specifically recites slits and protrusions as domain regulating means by themselves, as separate elements from the alignment layer. Hirata does not teach or suggest that the film lines 31d or the openings 48 can function to regulate the domains of liquid crystal molecules without the added alignment layers. Accordingly, no combination of Hirata with Koma could overcome this deficiency, and therefore the Section 103 rejection is respectfully traversed for these reasons as well.

With respect to independent claim 163 of the present invention, Applicants respectfully traverse. The Examiner has provided no specific reasoning or support for the rejection of independent claim 163 specifically, based on the combination of Koma and Hirata. Claim 163 recites, among other things, that a first substrate includes thin film transistors and protrusion-like structures on the substrate, where the protrusion is formed of a member that is the same as at least a part of a member of the thin film transistors. Neither reference alone or in combination discloses any such features.

Koma shows that no protrusions (or even slits) are formed on the same substrate as the TFTs. With respect to Hirata, although Applicants do not concede that Hirata's protrusion like-structures 42 are domain regulating means, nowhere does Hirata teach or suggest that such structures are formed of a member that is the same as at least a part of the TFTs. In fact, Hirata specifically teaches the opposite. Hirata teaches that the insulating film lines 31d are formed separately from the TFTs and of a different material. (See column 12, lines 18-28). Accordingly, rejection of independent claim 163, and its dependent claims, is further traversed for at least these reasons.

With respect to newly independent claim 168, Applicants first traverse the rejection similarly to the discussion above regarding claim 163. The Examiner has provided no specific reasoning or support for the rejection of this particular claim based on the combination of Koma with Hirata. Applicants further traverse as follows.

Claim 168 recites, among other things, that a first substrate includes protrusions as domain regulating means, and pixel electrodes, and that the protrusions are arranged at slits provided on the pixel electrodes. Neither Koma nor Hirata, alone or in combination, discloses any such structures. As discussed above, Koma shows no protrusions on the same substrate as the pixel electrode. More particularly, Koma shows that its slits are not provided on the pixel electrodes, but instead on the substrate opposite the substrate containing the pixel electrode.

Hirata also fails to show several of these same features of the present invention that are lacking in Koma. The Examiner cites only Fig. 22 of Hirata as support for his analogy to the slits of the present invention. Fig. 22 of Hirata, however, shows a nearly identical configuration to Koma, in that the slit-like opening 48 is clearly shown to be on the substrate opposite to the pixel electrode 44. In other words, Hirata also fails to teach or suggest any slits provided on the pixel electrodes. Because this recited feature of the present invention is not taught or suggested by either reference, the rejection of claim 168 specifically (and its dependent claims) is again traversed, and should be withdrawn.

The rejection of claim 168 is additionally traversed because neither reference, alone or in combination, teaches or suggests that the protrusions (as domain

regulating means) are arranged at the slits provided on the pixel electrodes. Irrespective of the location of the slits of the present invention on the pixel electrodes, neither reference even shows the combination of protrusion domain regulating means being arranged at slits. As previously discussed, and as is known in the art, protrusions and slits do not function identically. The specifically recited structure of claim 168 therefore renders the claim even further patentably distinct over the two cited prior art references. Accordingly, the rejection of claim 168 is further traversed for these additional reasons.

For all of the foregoing reasons, Applicants submit that this Application, including claims 150-151 and 154-170, is in condition for allowance, which is respectfully requested. The Examiner is invited to contact the undersigned attorney if an interview would expedite prosecution.

Respectfully submitted,

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IN THE CLAIMS:

Please cancel claim 167 without prejudice, and amend claims 150 and 168 as follows:

1-149. (Canceled)

150. (Currently Amended) A liquid crystal display device comprising:

a first substrate and a second substrate for sandwiching a liquid crystal having a negative dielectric constant anisotropy, and orientations of the liquid crystal being vertical to the first and second substrates when no voltage is applied; and

first and second domain regulating means for regulating azimuths of orientations of said liquid crystal when a voltage is applied to said liquid crystal, each of said first and second domain regulating means being provided under an alignment layer,

wherein said first and second domain regulating means consist of protrusions provided on said substrates or slits provided at electrodes on said substrates, and

wherein when vertically seen to the substrates, said first and second domain regulating means are arranged on said substrates so that said first domain regulating

means substantially surrounds said second domain regulating means in the display areas of the pixels.

151. (Previously Presented) A liquid crystal display device according to claim 150, wherein when vertically seen to the substrates, outer edges of said first domain regulating means substantially form closed curves.

152-153. (Canceled)

154. (Previously Presented) A liquid crystal display device according to claim 150, wherein said first domain regulating means consists of protrusions provided on said first substrate, and said second domain regulating means consists of protrusions provided on said second substrate.

155. (Previously Presented) A liquid crystal display device according to claim 150, wherein said first domain regulating means consists of protrusions provided on said first and second substrate, and said second domain regulating means consists of protrusions provided on said second substrate.

156. (Previously Presented) A liquid crystal display device according to claim 150, wherein said first domain regulating means consists of slits provided on

said first substrate, and said second domain regulating means consists of slits provided on said second substrate.

157. (Previously Presented) A liquid crystal display device according to claim 150, wherein said first domain regulating means consists of slits provided on said first and second substrates, and said second domain regulating means consists of slits provided on said second substrate.

158. (Previously Presented) A liquid crystal display device according to claim 150, wherein said first domain regulating means consists of protrusions provided on said first substrate, and said second domain regulating means consists of slits provided on said second substrate.

159. (Previously Presented) A liquid crystal display device according to claim 150, wherein said first domain regulating means consists of protrusions provided on said first substrate and slits provided on said second substrate, and said second domain regulating means consists of slits provided on said second substrates.

160. (Previously Presented) A liquid crystal display device according to claim 150, wherein said first domain regulating means consists of slits provided on

said first substrate, and said second domain regulating means consists of protrusions provided on said second substrate.

161. (Previously Presented) A liquid crystal display device according to claim 150, wherein said first domain regulating means consists of slits provided on said first substrate and protrusions provided on said second substrate, and said second domain regulating means consists of protrusions provided on said second substrate.

162. (Previously Presented) A liquid crystal display device according to claim 150, wherein four domains in which orientations of said liquid crystal are substantially different are formed in an area surrounded by said first domain regulating means when a voltage is applied to said liquid crystal.

163. (Previously Presented) A liquid crystal display device comprising a first substrate and a second substrate for sandwiching a liquid crystal having a negative dielectric constant anisotropy,

wherein said first substrate includes thin film transistors and domain regulating means, and

wherein said domain regulating means is a protrusion-like structure on said first substrate, and said protrusion-like structure is formed of a member that is the same as at least one member constituting said thin film transistors.

164. (Previously Presented) A liquid crystal display device according to claim 163, wherein said domain regulating means includes a first conductive layer of a material that is the same as that of a gate electrode of said thin film transistor, a first insulating layer of a material that is the same as that of a gate insulating layer of said thin film transistor and which covers said first conductive layer, a second conductive layer of a material that is the same as that of source/drain electrode of said thin film transistor and which is on said first insulating layer, and a second insulating layer of a material that is the same as that of a protection insulating layer of said thin film transistor and which covers said second conductive layer.

165. (Previously Presented) A liquid crystal display device according to claim 164, wherein pixel electrodes connected to said thin film transistor are provided on said first substrate, and said domain regulating means is provided in areas having no pixel electrode on said first substrate.

166. (Previously Presented) A liquid crystal display device according to claim 164, wherein said domain regulating means is arranged at slits provided on said pixel electrodes.

167. (Canceled)

168. (Currently Amended) A liquid crystal display device ~~according to claim 167~~ comprising a first substrate and a second substrate for sandwiching a liquid crystal having a negative dielectric constant anisotropy,

wherein said first substrate includes thin film transistors, domain regulating means and pixel electrodes connected to said thin film transistor,

wherein said domain regulating means is a protrusion-like structure and is provided at areas where conductive members corresponding to said pixel electrodes are not provided, and

wherein said domain regulating means is arranged at slits provided on said pixel electrodes.

169. (Previously Presented) A liquid crystal display device according to claim 168, wherein said domain regulating means is formed of a member that is the same as at least one member constituting said thin film transistors.

170. (Previously Presented) A liquid crystal display device according to claim 169, wherein said domain regulating means includes a first conductive layer of a material that is the same as that of a gate electrode of said thin film transistor, a first insulating layer of a material that is the same as that of a gate insulating layer of said thin film transistor and which covers said first conductive layer, a second conductive layer of a material that is the same as that of source/drain electrode of said thin film transistor and which is on said first insulating layer, and a second insulating layer of a material that is

the same as that of a protection insulating layer of said thin film transistor and which covers said second conductive layer.